

CHICAGO FORECAST DISTRICT.

During the mild weather which prevailed from the 3d to the 24th, long-range temperature forecasts were made from time to time, to the effect that mild temperature would continue several days. This information was of great value to shippers of perishable goods. On the 24th and 25th cold-wave signals were ordered well in advance of a cold wave which extended from the eastern Dakotas over the upper Mississippi Valley and the western Lake region. As this cold wave followed a prolonged mild spell the warnings were of great value to various interests. During the night of the 26th a severe cold wave developed in the extreme northwest, and the following morning cold-wave signals were ordered for the entire district with the exception of Montana and western portions of North Dakota and Colorado, and additional information was given that the cold wave would be exceptionally severe. The cold wave moved rapidly southward, causing intense cold over nearly the entire district. There was a temporary moderation of the cold on the 29th, but more severe weather immediately followed until the close of the month. The warnings which preceded the severe cold of the closing days of the month were of great benefit to shippers and the general public.

Several of the regular steamboat lines and car ferries continue service on Lake Michigan during the winter, and warnings of coming storms are sent to all open ports. That the advices have been heeded and proved of much value is shown by the fact that no casualties occurred to any vessel during the month of January, 1900, although several severe storms passed over the Lake region.—*H. J. Cox, Professor.*

SAN FRANCISCO FORECAST DISTRICT.

The month opened with heavy rain along the California coast. The rain was accurately forecast, and, coming as it did after a period of comparatively dry weather, caused much satisfaction to agriculturists and stockmen.

The Sacramento and San Joaquin rivers rose rapidly, the river at Red Bluff reaching a stage of 20 feet, or 8 feet above the normal. The Sacramento River by the evening of the 3d had reached a stage of 23.5 feet and from this stage rose steadily until the 10th, when it reached its highest stage, 26.8 feet. But little damage was done, in part owing to the warnings given, and chiefly because of the absence of rain during the latter half of the month.

A strong norther on the nights of the 10th and 11th, prevailed in southern California. Some ripe oranges were blown from the trees. Frost occurred on January 11. From the middle to the end of the month tule fog prevailed in the Sacramento and San Joaquin valleys.—*A. G. McAdie, Forecast Official.*

PORTLAND, OREG., FORECAST DISTRICT.

The barometric depressions of the month developed rapidly and moved with great rapidity over British Columbia and the Northwest Territory. No severe wind storms occurred, although high winds prevailed on the 5th, 9th, 22d, and 23d.

Owing to heavy and continued rains and warm weather, the Willamette River rose very rapidly, beginning on the 12th. On the 14th the river at Portland approached the danger line and the forecasts were begun. Each succeeding stage was accurately predicted from twenty-four to forty-eight hours in advance, and the maximum stage forecast within 0.3 of a foot. As the lower wharfs were flooded and the cellar limit nearly reached, there was much anxiety along the river front, which was allayed by the forecasts and special information. Had warehousemen and others taken alarm much money might have been spent unnecessarily.—*G. N. Salisbury, Section Director.*

AREAS OF HIGH AND LOW PRESSURE.

During the month there were thirteen highs and the same number of lows which were sufficiently well-defined to admit of being charted. See Charts I and II.

Highs.—Nine of the highs were first noted in the British Northwest Territory, and the crests of four of these, Nos. I, II, XIII, and one section of No. XI moved southeastward either near or into the west Gulf States where they recurved to the eastward, Nos. I and II moving off the south Atlantic coast, and Nos. XI and XIII continuing up the coast beyond the field of observation. The second section of No. XI first appeared off the California coast, and after moving to Alberta, closely followed the path of the first section which it overtook in central Tennessee. No. III was first noted in southern California, moved to northern Lake Superior, and thence southeastward to the Atlantic by way of southern New York. No. IV remained in the middle Plateau from the evening of the 9th until the morning of the 13th with gradually diminishing intensity. No. VI moved along the Gulf coast disappearing into the ocean off the South Carolina coast. Nos. V, VII, VIII, and X moved over the extreme north without touching United States territory, except in northern New York and New England. No. IX first appeared in southern Illinois and disappeared in twenty-four hours off the North Carolina coast. No. XII originated in the British Northwest, moved south-southeastward to Texas, and thence eastward to Georgia where it disappeared.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.										
I.....	1, a.m.	50	105	5, a.m.	33	78	3,625	4.0	906	37.8
II.....	3, a.m.	54	107	7, a.m.	37	75	3,175	4.0	794	33.1
III.....	5, p.m.	35	120	9, a.m.	43	74	3,075	3.5	878	36.6
IV.....	8, a.m.	41	124	9, p.m.	42	115	2,775	1.5	583	24.3
V.....	9, a.m.	53	108	12, a.m.	48	54	2,775	3.0	925	38.5
VI.....	12, a.m.	29	96	14, p.m.	33	80	1,300	2.5	520	21.7
VII.....	13, p.m.	53	108	16, a.m.	46	60	2,050	2.5	1,060	44.2
VIII.....	14, a.m.	47	123	18, a.m.	45	64	3,275	4.0	819	34.1
IX.....	21, a.m.	37	89	22, a.m.	87	78	775	1.0	775	32.3
X.....	22, a.m.	54	114	25, a.m.	46	60	2,675	3.0	892	37.2
XI.....	23, a.m.	38	123	29, a.m.	48	54	5,125	6.0	854	35.6
XII.....	24, a.m.	50	108	30, a.m.	33	84	3,800	6.0	760	31.7
XIII.....	26, a.m.	54	114	30, a.m.	33	84	2,950	4.0	738	30.7
	29, p.m.	53	108	75, a.m.	48	54	4,300	6.5	662	27.6
Sums.....							40,375	50.5	11,166	465.4
Mean of 14 paths.....							2,884		798	33.2
Mean of 50.5 days.....									800	33.2
Low areas.										
I.....	3, p.m.	51	104	5, a.m.	48	68	1,650	1.5	1,100	45.8
II.....	5, a.m.	48	125	7, p.m.	48	68	2,825	2.5	1,130	47.1
III.....	7, p.m.	48	125	10, a.m.	48	68	2,725	2.5	1,090	45.4
IV.....	9, p.m.	51	114	12, a.m.	41	74	2,200	2.5	880	36.7
	8, p.m.	54	112				2,725	3.5	779	32.4
V.....	12, p.m.	53	114	14, p.m.	43	75	2,075	2.0	1,038	43.2
VI.....	14, a.m.	45	109	18, a.m.	40	87	2,800	4.0	700	29.2
VII.....	18, p.m.	30	88	21, a.m.	46	60	2,150	2.5	860	35.8
VIII.....	19, a.m.	53	105	20, a.m.	47	85	1,100	1.0	1,100	45.8
IX.....	20, p.m.	53	114	24, a.m.	48	54	2,925	3.5	836	34.8
X.....	22, p.m.	51	120	26, p.m.	48	68	3,225	4.0	806	33.6
XI.....	23, p.m.	49	97	28, a.m.	47	85	675	1.5	450	18.8
XII.....	27, p.m.	25	82	29, p.m.	48	68	1,975	2.0	988	41.1
XIII.....	28, a.m.	53	109	71, a.m.	48	68	2,675	4.0	669	27.9
Sums.....							81,725	37.0	12,426	517.6
Mean of 14 paths.....							2,266		888	37.0
Mean of 37.0 days.....									887	35.7

*Considered as two in totals and means.

†February.

Lows.—Of the thirteen lows, all but four were first noted on the extreme north Pacific coast or in the British Northwest Territory, and moved eastward through or north of the Lake region. Two of them, Nos. X and XIII, dipped down into southern New England and then turned sharply to the